

EXHIBIT A
LISTING OF ALL CLAIMS AND AMENDMENTS
(06-09-2006)

Amendments to the Claims

Claim 1 (currently amended)

1. A system for transferring ~~a hardware independent service request requests~~ between a client application and at least one of a plurality of supported motion control systems using a communications network, comprising:

a set of functions callable by the client application, where each hardware independent service request corresponds to at least one of the functions and is associated with a service performed by one or more of the supported motion control systems;

~~a client-build module for building a one or more service request envelope for containing envelopes that contain the hardware independent service request requests associated with functions called by the client application,~~
where

at least one service request envelope conforms to a network protocol associated with the communications network, and

~~the hardware independent service request is associated with a service performed by the motion control system, and~~

~~the client build module transmits the service request envelope~~ is capable of being transmitted across the communications network according to the network protocol;

~~a service request format module for extracting the one or more hardware independent service request requests from the one or more service request envelope, envelopes and converting the one or more hardware independent service request requests into a at least one hardware independent service request function method, and invoking the hardware independent service request method; wherein~~

the motion control system comprises a motion services module that converts the hardware independent service request ~~method-functions~~ into at least one hardware dependent motion command, where at least one motion control system is selected from the plurality of supported motion control systems and a format of the at least one hardware dependent motion command is determined based on the at least one selected motion control system selected from the plurality of supported motion control systems; and the selected motion control system operates in response to the hardware dependent motion command to perform the service-services associated with the hardware independent service requestrequests.

Claim 2 (currently amended)

2. A system as recited in claim 1, in which the service request format module receives a return value from the motion control system in response to the at least one hardware independent service request, builds a return response envelope containing the return value, and transmits the return response envelope to the client application.

Claim 3 (canceled)

Claim 4 (currently amended)

4. A system as recited in claim 1, in which the service request format module invokes the service request method-functions on the motion control system across a process boundary.

Claim 5 (currently amended)

5. A system as recited in claim 1, in which the service request format module invokes the service request method-functions on the motion control system within a single process.

Claim 6 (canceled)

Claim 7 (previously presented)

7. A system as recited in claim 1, further comprising a data format module that converts service request data between a first data format associated with the communications network and a second data format associated with the motion control system.

Claim 8 (previously presented)

8. A system as recited in claim 1, further comprising a method discovery module for determining a set of services supported by the motion control system.

Claim 9 (previously presented)

9. A system as recited in claim 1, further comprising a data management module between the client build module and the service request format module, where the data management module manages service requests.

Claim 10 (previously presented)

10. A system as recited in claim 9, in which the data management module further routes service requests to a database for persistent storage.

Claim 11 (previously presented)

11. A system as recited in claim 10, further comprising a data caching module for processing data stored in the database.

Claim 12 (currently amended)

12. A system as recited in ~~claim 7~~claim 1, further comprising:
a data management module between the client build module and the service request format module, where the data management module manages service requests;
a database for persistently storing ~~services~~service requests; and
a data caching module for processing data stored in the database.

Claim 13 (currently amended)

13. A system for transferring a hardware independent service request between a client application and at least one of a plurality of supported motion control systems using a communications network, comprising:

a set of functions callable by the client application, where each hardware independent service request corresponds to at least one of the functions and is associated with a service performed by the motion control system;
a client-build module for building a one or more service request envelope for containing envelopes that contain the hardware independent service request requests associated with functions called by the client application, where
at least one service request envelope conforms to a network protocol associated with the communications network, and
~~the hardware independent service request is associated with a service performed by the motion control system, and~~
~~the client build module transmits the service request envelope~~ is capable of being transmitted across the communications network according to the network protocol;

a service request format module for extracting ~~the one or more hardware independent service request requests from the one or more service request envelope, envelopes and~~ converting the hardware independent service request into a hardware independent service request function method, and ~~invoking the hardware independent service request method;~~ wherein

the motion control system comprises a motion services module that converts the hardware independent service request ~~method~~ functions into at least one hardware dependent motion command, where the hardware independent service request method conforms to a programming interface common to the supported motion control systems; and

at least one of the supported motion control system systems operates in response to the hardware dependent motion command to perform ~~the~~

~~services~~services associated with the hardware independent service request~~requests~~.

Claim 14 (currently amended)

14. A system as recited in claim 13, in which the service request format module receives a return value from the motion control system in response to ~~the~~at least one hardware independent service request, builds a return response envelope containing the return value, and transmits the return response envelope to the client application.

Claim 15 (canceled)

Claim 16 (currently amended)

16. A system as recited in claim 13, in which the service request format module invokes ~~the service request method~~functions on the motion control system across a process boundary.

Claim 17 (currently amended)

17. A system as recited in claim 13, in which the service request format module invokes ~~the service request method~~functions on the motion control system within a single process.

Claim 18 (canceled)

Claim 19 (previously presented)

19. A system as recited in claim 13, further comprising a data format module that converts service request data between a first data format associated with the communications network and a second data format associated with the motion control system.

Claim 20 (previously presented)

20. A system as recited in claim 13, further comprising a method discovery module for determining a set of services supported by the motion control system.

Claim 21 (previously presented)

21. A system as recited in claim 13, further comprising a data management module between the client build module and the service request format module, where the data management module manages service requests.

Claim 22 (previously presented)

22. A system as recited in claim 21, in which the data management module further routes service requests to a database for persistent storage.

Claim 23 (previously presented)

23. A system as recited in claim 22, further comprising a data caching module for processing data stored in the database.

Claim 24 (currently amended)

24. A system as recited in ~~claim 19~~claim 13, further comprising:
a data management module between the client build module and the service request format module, where the data management module manages service requests;
a database for persistently storing ~~services~~service requests; and
a data caching module for processing data stored in the database.